Section Eight:

Fetal and Infant Mortality Review (FIMR)

Overview of Michigan Fetal and Infant Mortality Review

Overview of Infant Mortality, Ages 0-1

Background

FIMR Outcomes

Stratgegies to Implement Local FIMR Recommendations

Overview of Michigan Fetal and Infant Mortality Review

Michigan FIMR is a good example of individual communities, university and government working together.

Program Description and History

The goal of Fetal and Infant Mortality Review (FIMR) is to enhance the health and well-being of women, infants and families by improving community resources and service delivery systems available to them. Michigan FIMR is a good example of individual communities, university and government working together to improve the perinatal system, and ultimately to reduce the number of infant deaths.

Both Saginaw and Battle Creek, Michigan, began local FIMR projects in the 1980s and early 1990s, respectively. Both communities formed coalitions to study the problem of infant mortality and began a FIMR process to help understand how and why infants were dying. Battle Creek was unable to continue the process when funding from a federal grant ended. Saginaw, however, found other funding that allowed the FIMR to continue without interruption. This project is one of the oldest in the country and continues as a model for newly developing local teams in Michigan.

A project to study infant deaths in Detroit using the FIMR approach was approved in 1991 as part of the Detroit Healthy Start. Detroit became a demonstration project for inner-city infant mortality reduction strategies. A comprehensive summary of cases was produced and presented locally, state-wide and nationally. This FIMR project ended in 1997, however, the City of Detroit resumed FIMR reviews in 2001.

The Michigan Department of Community Health, using Title V funds, supported these projects with technical assistance, and statistical and epidemiological information. The value of this surveillance and review was recognized, and provided the background for establishing statewide support for local FIMR teams. The three original FIMR projects also demonstrated the interaction needed between FIMR and other Maternal and Child Health programs designed to lower infant mortality.

Above all, the development of state support for local FIMR teams was designed to help improve the outcome of births in Michigan. Having experienced a decline in infant mortality much slower than that for other areas across the nation, Michigan was determined to improve this picture. The current Title V Needs Assessment and five year plan includes information gained from local FIMR findings and calls for continuation of this process. Communities with infant mortality rates above the state average and those communities with a significant racial or ethnic disparity in infant mortality are targeted to improve the identification of local issues affecting poor birth outcomes.

The FIMR Process

The FIMR process entails four intertwined components: 1) data gathering, 2) case review, 3) community action, and 4) changes in community systems. Currently, only infant deaths are reviewed in order to identify associated factors, determine if these factors represent system problems, develop recommendations for change and assist in the implementation of change. As local teams are able, fetal deaths will be included to learn more about factors earlier in pregnancy that may lead to fetal demise. FIMR teams examine the significant social, economic, cultural, safety and health system factors associated with fetal and infant mortality through a case study approach. Deaths are identified through a local process, typically with notification of the local health department. Death certificates are matched with birth certificates and autopsy reports if available. Medical records are reviewed according to a protocol. Finally, the parent(s) are contacted and a family interview is done to round out the information available and a de-identified case summary is produced for team review.

FIMR teams examine the significant social, economic, cultural, safety and health system factors associated with the deaths.

Data Gathering

Data are collected from a variety of sources including: maternal history; labor and delivery records; infant pre/post discharge records; home and environmental records; prenatal visit records; maternal hospitalization record; well and sick baby visits; infant emergency department and hospital re-admissions; WIC and other social services; and interview with the family, particularly the mother.

Case Review

The Community Review Teams (CRT) are multi-disciplinary, including representation from the medical and health provider community, public health, human service agencies, law enforcement, key community leaders, consumer and advocacy groups, and in some teams, parents who have lost a child. Teams examine each fetal and infant death asking questions such as:

- Did the family receive the services or community resources they needed?
- Are there gaps in the systems?
- Can this case tell us about how families can use the existing local resources?
- What are the barriers to care and trends in service delivery?
- What can be done to improve policies that affect families?

The Value of Case Review

The FIMR process:

- Gives mothers and families a voice in the process of service and resource improvement through incorporation of a Maternal Home Interview into the review process;
- Brings a multi-disciplinary, community team together to review confidential, de-identified deaths of infants under one year of age; to identify issues and make recommendations for community change;
- Uses a Community Action Team (CAT) of leaders representing government, consumers, key institutions, health and human service organizations that take recommendations to action. The action teams track progress on recommendations, prioritizes identified issues, designs and implements interventions that may improve outcomes for future families; and
- Is a blend of public health surveillance activity, population-based research, and continuous quality improvement as well as a basis for policy development.

The role of the CAT is to translate Case Review Team recommendations into action.

Community Action

Recommendations from the CRT are presented to a team of individuals referred to as the Community Action Team. The CAT is composed of two types of members: 1) individuals with the political will and fiscal resources to create large-scale system change, and 2) individuals who can define a community perspective on how best to create the desired change in the community. The role of the CAT is to translate case review team recommendations into action, and participate in implementing interventions designed to address identified problems.

Changes in Community Systems

The continuous nature of the FIMR process provides a built-in feedback mechanism that helps to assess whether or not policy recommendations and actions are implemented. Changes, or lack thereof, in the community service systems and resources for women, children and families will be evident in new case reviews. Additionally, mechanisms to inform the CRT and CAT about the progress of interventions are developed.

Team Coordination

To insure the success of a local FIMR, a dedicated team coordinator takes responsibility for the management of the activities of the program. The coordinator may supervise FIMR staff members (including home interview staff), abstract vital statistics and medical records, develop case summaries, facilitate team meetings and serve as program liaison to other community agencies involved in the review or action team process. The team coordinator also develops written recommendations based on the review findings and ensures that they are regularly brought to the CAT for deliberation and prioritization.

FIMR teams usually review cases six to eight months after the death since it takes about three months of field work to have cases ready to review. Local teams determine the number of cases and the types of cases to be reviewed. Teams use analysis of community priorities as criteria for the causes of death to be reviewed. Most FIMR review teams meet once a month and review two or three cases.

Participating Communities

Saginaw County - Lead Agency: Saginaw County Department of Public Health
Tuscola County -Cooperative agreement with Saginaw's FIMR
Kalamazoo County - Lead Agency: Kalamazoo Human Services Department
Genesee County - Lead Agency: Genesee County Health Department
Oakland County - Lead Agency: Oakland County Health Division
Calhoun County - Lead Agency: Calhoun County Health Department

New FIMR Teams in 2001

Kent County - Lead Agency: Spectrum Health
Detroit - Lead Agency: City of Detroit Health Department
Branch County - Lead Agencies: Partnership between Family Services Network (Branch's Multi-Purpose Collaborative Body) and Branch-Hillsdale-St. Joseph Community Health Agency

Teams in Formation (Expecting Start-up in 2002/2003)

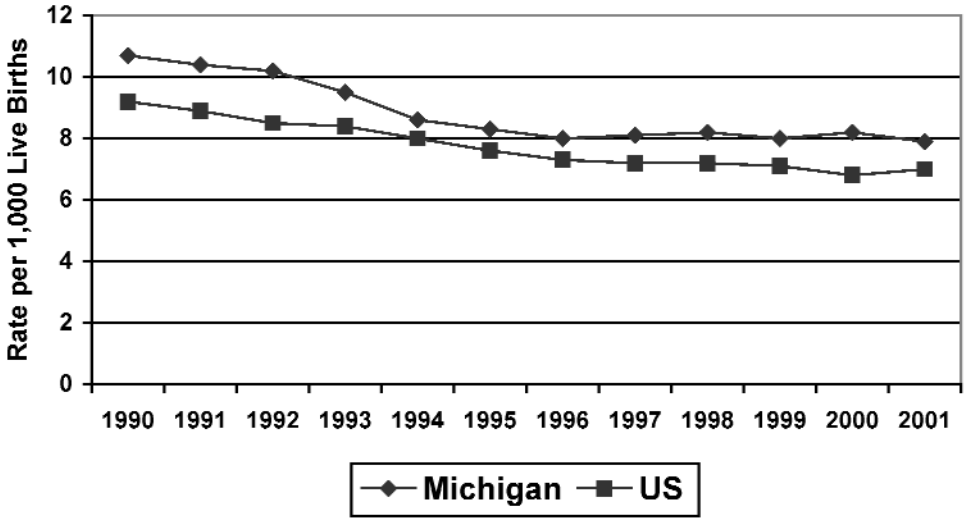
Jackson County
Washtenaw County
Berrien County
Lapeer County
Inter-tribal Council
Ingham County
Muskegon County

Overview of Infant Mortality, Ages 0-1

Michigan Mortality Data from Death Certificates

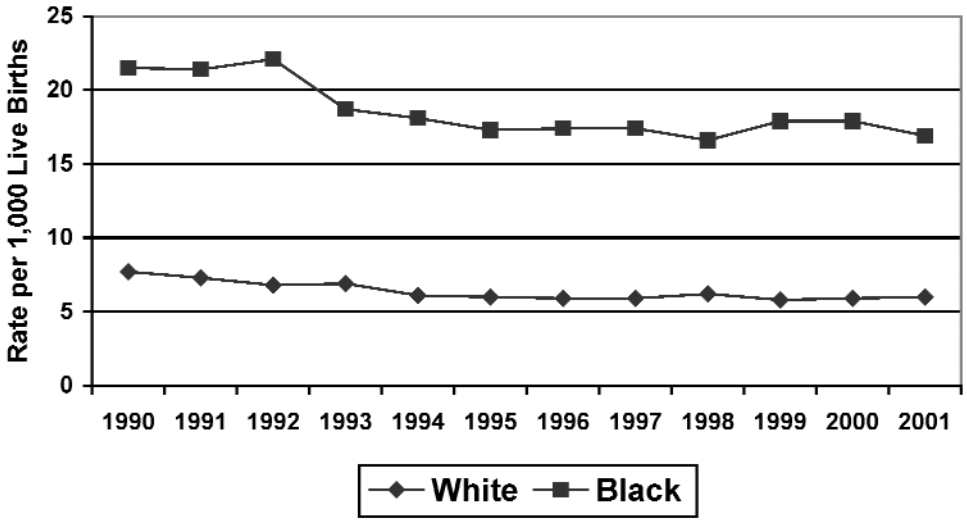
Infant mortality rates in Michigan have remained consistently higher than United States rates since 1990. Michigan ranked 39th out of the 50 states by infant mortality rate at the last determination (1998-99 data).

Figure 72
Infant Mortality Rates, Michigan vs. US, 1990-2001



Reduction of infant mortality is a health priority for the State of Michigan. Those committed to improving the outcome for infants in Michigan recognize a complex and variable configuration of risk. Racial, ethnic and geographic disparities have characterized the problem for many years, but no approaches or tools have emerged to eliminate all preventable infant deaths. Perinatal technology has improved the survival of those born too small and too soon, thus producing significant reduction in deaths through in-hospital neonatal intensive care. Community approaches are needed, however, to impact the rate of death for those who survive the neonatal period and to improve the health of mothers.

Figure 73
Michigan Infant Mortality Rates by Race, 1990-2001



Infant mortality reduction is largely focused on addressing what are considered risk factors for early childhood death. Thus annual analysis of causes of death, racial differences and the correlation between pregnancy events and birth outcomes in infant deaths are important for targeting strategies.

Black infant mortality rates continue to be almost three times higher than white rates.

The racial disparity in infant mortality is one of the most significant issues under study. Black rates continue to be almost three times higher than white rates. High rates of premature births (less than 37 weeks gestation), low birth weight (less than 2,500 grams) and late entry or no prenatal care are also disproportionately greater among African Americans.

The Perinatal Periods of Risk (PPOR) model for interpreting infant mortality data has been used to focus study and prioritize prevention efforts. Michigan is most vulnerable in the Maternal Health/Prematurity period. Sixty-eight percent of infant deaths occur in the first 28 days of life, indicating a need to improve preconception health, unintended pregnancy rates, smoking cessation, drug abuse rates and specialized perinatal care. The next greatest period of risk is Infant Health, which indicates a need to improve safe sleep environments for infants, breastfeeding promotion and injury prevention.

Background

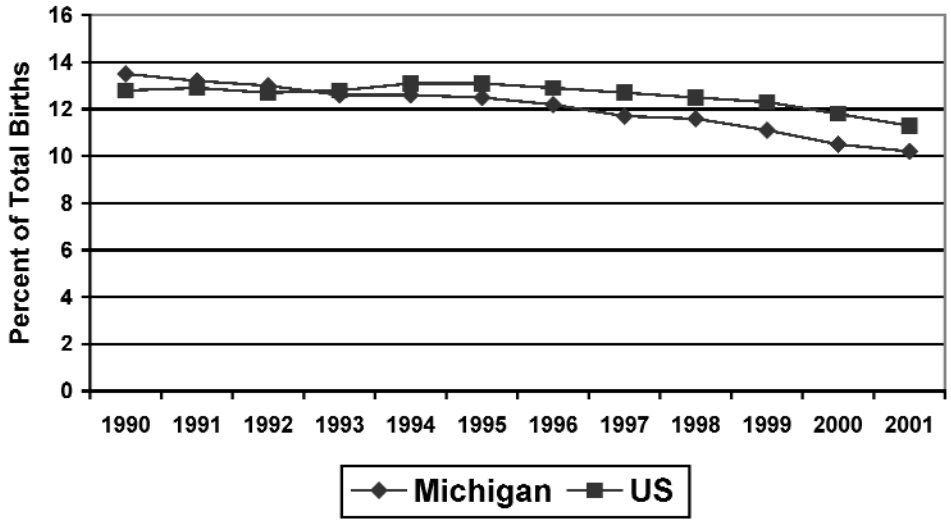
Michigan Demographics

Michigan's live birth rate has leveled off since 1996 at approximately 133,000 births, after significant declines in births since 1990. Overall, the total births declined 13% from 1990 to 2001. Births to white mothers declined 12% in the same period and births to black mothers declined 26%.

Sixty-eight percent of infant deaths occur in the first 28 days of life.

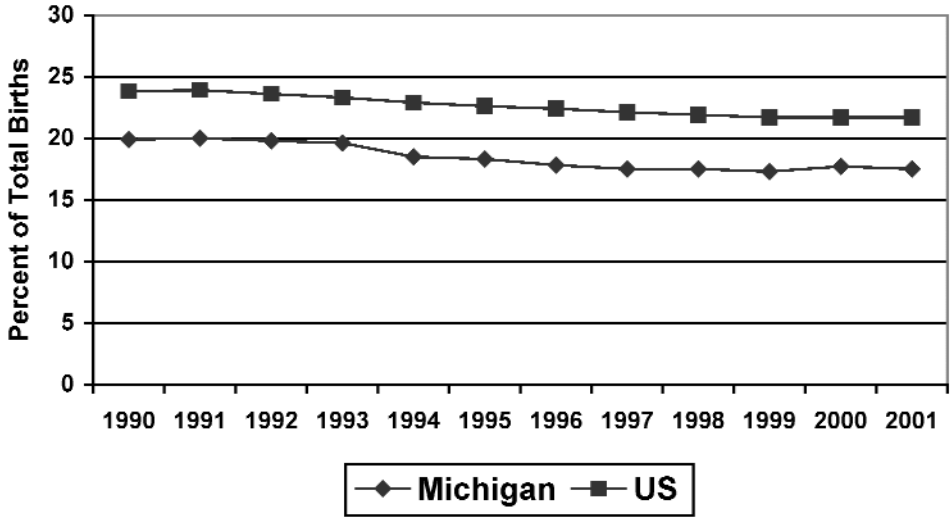
Infant mortality is linked to characteristics of the mother, such as race, age, marital status, education, type of insurance, prenatal care and smoking.

Figure 74
Percent of Total Births to Teens, Michigan vs. US, 1990-2001*



* From KIDS COUNT – Right Start Online

Figure 75
Percent of Total Births to Mothers with Less Than 12 Years of Education, Michigan vs. US, 1990-2001*



* From KIDS COUNT – Right Start Online

FIMR Outcomes

The following section will summarize Michigan infant deaths and the findings of the local FIMR teams in the hope that recommendations and initiatives that have been successful in these nine communities may inspire further efforts in other communities and among our state leaders to improve the lives and the health of Michigan's women, infants and families.

A Summary of Infant Death Data

In Michigan in 2001, 1,053 live-born infants did not survive until their first birthday. Deaths of infants less than one year accounted for 60% of all child deaths in 2001. Prior to 2000, only two sites in Michigan were conducting Fetal and Infant Mortality Reviews. By the end of 2001, eight sites were actively reviewing deaths. Table 89 gives the actual number of infant death cases reviewed by teams over the last four years. Since this is the first time FIMR findings are included in the annual CDR report, this section will be an inclusive analysis of the last four years of data, with the subsequent reports focusing in on the year of review.

Table 89
Number of Michigan FIMR Reviews by Year, 1997-2001*

Year of Review	Number of Cases
1997	23
1998	54
1999	66
2000	104
2001**	27
Unknown	2
Total	**276**

*Review Sites:
1998: Saginaw and Kalamazoo
1999: Saginaw, Kalamazoo, and Genesee
2000: Saginaw & Tuscola, Kalamazoo, Genesee, Calhoun and Pontiac
2001: Saginaw and Tuscola, Kalamazoo Genesee, Calhoun, Pontiac and Southfield, Detroit, Kent and Branch
** Data from 2001 was incomplete at the time of this report.

Infant Deaths Reviewed by Cause

The five leading causes of infant death in the FIMR reviews were low birth weight (LBW) and prematurity, respiratory disease, suffocation/positional asphyxia, congenital anomalies and Sudden Infant Death Syndrome (SIDS). About 88% of the known causes of infant deaths fell into one of these categories. Prematurity deaths accounted for about 49% of those cases.

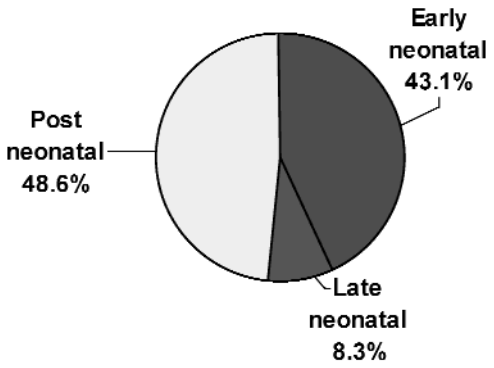
Table 90
Number and Percent of Michigan Infant Deaths Reviewed by Cause, 1997-2001

Cause of Death	Number	Percent
Prematurity/LBW	110	39.9
Respiratory Disease	24	8.7
Suffocation/Positional Asphyxia	23	8.3
Congenital Anomalies	22	8.0
SIDS	20	7.2
Other	26	9.4
Unknown/No answer	51	18.5
Total	**276**	**100.0**

Age at Death

Fifty-one percent of the cases reviewed by local FIMR teams were neonatal deaths (i.e., infants did not survive the first 28 days of life) and 43% were early neonatal deaths (i.e., infants did not survive the first week of life).

Figure 76
Percent of Michigan Infant Deaths Reviewed by Age, 1997-2001



Birthweight

Fifty-two percent of the cases reviewed by local FIMR teams were born very small. They weighed less than one pound 10.5 ounces (750 grams). About 75% of all the cases reviewed were infants with low birth weights (under five pounds eight ounces or 2,500 grams.

Table 91
Percent of Michigan Infant Deaths
Reviewed by Birth Weight in Grams, 1997-2001

Birthweight	Number	Percent
Under 750 grams	144	52.2
750 to 1499 grams	28	10.1
1500 to 2,499	35	12.7
Over 2,500 grams	68	24.6
Unknown	1	0.4
Total	**276**	**100.0**

Period of Gestation

Table 92
Percent of Michigan Infant Deaths
Reviewed by Gestational Age, 1997-2001

Gestational Age	Number	Percent
Under 24 weeks	73	26.4
24 to 31 weeks	55	19.9
32 to 37 weeks	35	12.7
Over 37 weeks	66	23.9
Unknown	47	17.1
Total	**276**	**100.0**

Over 26% percent of cases reviewed are infants of less than 24 weeks gestation.

Statewide, low birth weight and prematurity (under 38 weeks) combined is the leading cause of death for black infants.

Race

While black infant births made up about 18% of all Michigan live births in 2001, black infant deaths made up nearly 40% of all Michigan infant deaths. The Michigan white infant mortality rate closely resembles the white infant mortality rate for the U.S. In 2001, Michigan's white infant mortality rate was 6.0 deaths/1,000 live births, compared to the U.S. white infant mortality rate of 5.7 deaths/1,000 live births. However, the black infant mortality rate for Michigan remained significantly higher than the black infant mortality rate for the U.S., 16.9 deaths/1,000 live births compared to 14.0 deaths/1,000 live births in the year 2001. Michigan consistently shows an average ratio of 3:1 for black infant deaths over white infant deaths.

Table 93
Percent of Michigan Infant Deaths Reviewed
by Race of Mother, 1997-2001

Race of Mother	Number	Percent
White	103	37.3
Black	109	39.5
Other	16	5.8
Unknown	48	17.4
Total	**276**	**100.0**

Prenatal Care

Risk factors and trends begin to emerge after case reviews, helping local communities plan initiatives to bridge the gaps in care and improve the resources available for women and babies in their individual communities. Reviews of the deaths due to prematurity revealed that only one out of two moms whose infants died had adequate prenatal care, and 34% entered care after the first 12 weeks of pregnancy.

Table 94
Percent of Michigan Infant Deaths Reviewed by Adequacy of Prenatal Care, 1997-2001

Kessner's Index	Number	Percent
Adequate	66	23.9
Intermediate	35	12.7
Inadequate	30	10.9
Unknown	145	52.5
Total	**276**	**100.0**

Table 95
Percent of Michigan Infant Deaths Reviewed by Entry into Prenatal Care, 1997-2001

Entry into Care	Number	Percent
Before 12 weeks gestation	111	40.2
After 12 weeks gestation	96	34.8
Unknown	69	25.0
Total	**276**	**100.0**

Pregnancy Intendedness

In Michigan, 71% of all births are unplanned or unintended, and approximately 60% of Medicaid births are unplanned.* Women who have unwanted or unplanned pregnancies are more likely to be poorly committed to the outcome, and less likely to seek adequate prenatal care and change behavior related to substance use and abuse.

Table 96
Percent of Michigan Pregnancy Intendedness, 1997-2001

Intendedness	Number	Percent
Planned pregnancy	20	7.2
Unplanned pregnancy	196	71.0
Unknown	60	21.7
Total	**276**	**100.0**

*MI PRAMS data report, 2000

Prematurity and Infections

Conditions which are known to pre-dispose a woman to preterm labor are infections such as sexually transmitted diseases and other events that may weaken the cervix, such as previous elective abortion, spontaneous miscarriage, previous infant loss or stillbirth. In the cases of premature infants reviewed by FIMR teams, nearly two-thirds of the women had had either a previous voluntary interruption of pregnancy (VIP) or a spontaneous miscarriage/abortion (SAB). Infections, including Sexually Transmitted Infections (STI's) were present in 57% of the women who lost infants to prematurity. Previous loss of either a live born or stillborn infant affected 16% of the women whose babies died due to prematurity.

Michigan statistics reveal that about 35% of all premature infants had moms who smoked tobacco while pregnant.

Table 97
Percent Michigan Premature Infant Deaths Reviewed by Conditions Affecting the Cervix, 1997-2001 (n=110)

Condition	Number	Percent
Previous VIP/SAB	51	46.4
Previous infant/fetal loss	17	15.5
Infections/STI's	63	57.3

Prematurity and Substance Exposure in Pregnancy

Michigan statistics reveal that about 35% of all premature infants had moms who smoked tobacco while pregnant. Over the last 10 years, approximately 1.4% of women report drinking alcohol while pregnant, and 0.8% admit to using illicit drugs at some time during their pregnancy. These numbers are thought to be extremely underreported, as they are taken from birth certificates, which are "self reported" information in Michigan. FIMRs are able to look at the substance use and abuse issue with greater accuracy, combining medical chart abstraction with confidential home interview information.

Table 98
Percent of Michigan Premature Infant Deaths Reviewed by Substance Use by Mom, 1997-2001 (n=110)

Substance Use	Number	Percent
Smoked during pregnancy	38	34.5
Drank alcohol while pregnant	15	13.6
Used drugs while pregnant	19	17.3

Prematurity and Social Factors

Poverty, stress and lack of social support have been emerging as factors in the literature that may play a role in predisposition to pre-term labor, especially for black women. Forty-three percent of prematurity deaths reviewed by FIMR teams were identified as having multiple stressors or "social chaos" present in the lives of the moms. About 66% of the cases reviewed had moms with private insurance, the majority being on Medicaid. Slightly more than one-third of the moms had inadequate social support, from either partner or family.

Table 99
Percent of Michigan Premature Infant Deaths Reviewed by Psychosocial Risk Factors for Prematurity, 1997-2001 (n=110)

Maternal Risk Factor for Prematurity	Number	Percent
Multiple Stressors	47	42.7
Medicaid or Self Insured	72	65.5
Poor Nutrition	14	12.7
No Social Support	31	28.2
Violence	23	20.9

Areas of Need

The following are findings of local team reviews that enumerate components of maternal health, antenatal care and infant health that affect pregnancy outcomes:

Maternal Health Status

- Substance abuse and chemical addiction is a common finding. Women may avoid prenatal care for fear of having their drug dependency discovered.
- Infections prior to and early in pregnancy are linked with infant deaths.
- Unwanted pregnancies are highly correlated with infant deaths.
- Obesity and poor nutrition are associated with poor outcome.
- Domestic violence and sexual abuse are common occurrences.

Antenatal Care

- Pre-term labor is highly correlated with infant death.
- Many women still enter prenatal care late in the pregnancy or not at all.
- Negative experiences with hospital personnel, including cultural insensitivity, foster feelings of helplessness.

Infant Health Status

- Antepartum care is fragmented and referrals are often not completed.
- Congenital anomalies lack follow-up for services and prevention-strategies.
- Accuracy of the cause of death hampers prevention strategies.
- Lack of grief support impairs readiness for subsequent pregnancies and increases the family stress.
- Infants sleeping with adults in beds, couches, etc. is linked with an increasing incidence of accidental suffocation or strangulation.
- Inadequate housing, overcrowding, high stress living conditions, violence in the neighborhood and lead contaminated housing are common findings.

Recommendations for Policymakers Regarding Infant Deaths

1. Improve the funding of local Fetal and Infant Mortality Review to target communities with the highest infant death rates and greatest racial disparities.
2. Implement a data collection system statewide for Maternal Support Services/Infant Support Services, including consistent assessment of client needs and services provided.
3. Evaluate the Medicaid data to determine how infant mortality is impacted by barriers to access such as Medicaid reimbursement policies, transportation reimbursement and provider resources/availability.
4. Collect data on maternal morbidity and the effect on prematurity, low birth weight and infant mortality such as the impact of stress and abuse of women of childbearing age and their families.
5. Initiate surveillance data analysis of fetal deaths to improve knowledge of early pregnancy loss.
6. Support WIC co-location and case management as a means to improve early access to prenatal care.
7. Raise the awareness of health care providers that all pregnant women should be assessed for substance abuse and domestic violence and treatment programs made available.
8. Improve access to family planning resources to reduce the number of unintended and unwanted pregnancies.
9. Initiate pre-pregnancy (preconceptional) care funding to reduce maternal health problems prior to pregnancy.

Recommendations for Parents and Caregivers

- Be aware of the importance of planning pregnancy and optimal spacing.
- Understand the importance of nutrition and folic acid supplements.
- Recognize the role of stress and abuse on pregnancy outcome.
- If you are pregnant, or ***think*** you may be pregnant, see your health care provider early and often, and follow their advice.
- Avoid alcohol, tobacco and drugs during pregnancy and in the three months before pregnancy.
- If you experience any warning signs for pre-term labor, call your health care provider right away.
- Provide a safe crib for infants to sleep in and avoid bed sharing.
- Breastfeed infants to provide the best nutrition and bonding experience.
- Value the support of the whole community to care for mothers, pregnant women and families.

Strategies to Implement Local FIMR Recommendations

Oakland County's FIMR team has partnered with the faith–based community and published church bulletin inserts called "Save our Babies, Save Our Heritage" and pamphlets aimed specifically at helping black women understand the warning signs for pre-term labor and other pregnancy complications. A "Think Ahead" component gives women easy steps to follow before they become pregnant to increase the chances of a healthy outcome and reduce risks for infant mortality.

Saginaw, along with other FIMR communities, has recognized the value of community health workers or para-professionals working with pregnant moms to reduce the stress in their lives and link them to essential community resources for food, housing, transportation and child care. Because of their FIMR findings, Saginaw has increased their number of Maternal Infant Health Advocacy Services (MIHAS) workers from two to six, using federal grant monies from their Healthy Start allocation to insure that the most underserved women have an advocate working with them throughout their pregnancy, and up to infant's second birthday.

Another example of taking FIMR recommendations to action is the Saginaw domestic violence assessment initiative. Repeated death reviews showed that violence and physical abuse were factors in over 60% of the women who had experienced an infant loss. A pilot program was launched to detect abuse in pregnancy in three of the high-risk clinics providing prenatal care in the community. Now, because of FIMR efforts, assessment for abuse is a standard of care for any woman seeking prenatal care in these clinics.

Genesee and Kent Counties have both used their FIMR findings regarding substance use to drive new initiatives in prenatal risk assessment. In-depth screening tools have been developed and piloted in prenatal care provider sites, resulting in much better identification of women at risk due to psychosocial issues and substance use, with resources put into place for referrals to gender specific treatment programs for women.

In response to their FIMR findings on unplanned pregnancy, the Genesee County Health Department targeted places where women in their county went for pregnancy testing for an intense and creative system of education. Four "kits" were assembled with information on contraception, pregnancy prevention information, preconception care and resources for early prenatal care. Women who tested negative, and reported that they *did not* want to be pregnant, received the kits with information on pregnancy prevention and contraception. Women who tested negative but *did* want to be pregnant received the kit filled with preconception information, samples of prenatal vitamins and resources for substance avoidance, smoking cessation, etc. Women with positive pregnancy tests, reporting both wanted and unwanted pregnancies, received kits with sample prenatal vitamins, information on where to go for prenatal care, and were enrolled into an aggressive follow-up program.

Kalamazoo's Community Action Team has launched a community-wide campaign called "Early and Often," encouraging moms to get into prenatal care as soon as possible, and see their provider often. They have also focused attention on educating women on the signs and symptoms of pre-term labor. Refrigerator magnets distributed to pregnant moms and added labels on prenatal vitamins are two ways they have increased public awareness and gotten prevention messages out. Sixteen fewer babies died in Kalamazoo in 1999 than the year before. Their infant mortality rate declined from 9.7 deaths/1,000 live births in 1998 to 4.8 deaths/1,000 live births in 1999, nearly a 50% reduction.

In their early FIMR days, Saginaw responded by expanding prenatal care to the Federally Qualified Health Center and increasing the number of local providers by expanding the OB/GYN residency program in cooperation with a local clinical campus for the college of human medicine. Saginaw's FIMR team worked with the local department of transportation to change the city bus routes to facilitate women getting to the clinic sites, and added covered bus shelters at several locations. Saginaw's overall infant mortality rate has declined by nearly 50% since the start of FIMR, from 14.7 deaths/1,000 live births in 1992 to 7.2 deaths/1,000 live births in 1999. Rates for 2000 and 2001 have increased slightly to 9.6 and 9.8 deaths/1,000 live births, but significant strides have been in reduction of pre-term and low birth weight births by improving the adequacy of prenatal care.

Multiple FIMR communities have identified the need for safe sleep education, in response to the growing number of accidental suffocation deaths caused by unsafe sleep environment, or overlay by an adult or other person sharing a bed with an infant (see CDR section on Accidental Suffocation).

Saginaw's reviews reveal that suffocation accounts for 12 - 13% of all their infant mortality. In Kalamazoo, suffocation is the fourth leading cause of infant mortality, behind prematurity/LBW, respiratory problems and congenital anomalies. KISS, the Kalamazoo Initiative for Safe Sleep, has hosted community baby showers with education to new and expectant families on Safe Sleep and resources for cribs. KISS partnered with the local hospitals to get the message out early and repeatedly, that infants should sleep alone, in a crib, with no extra blankets, bedding or toys. Saginaw has partnered with the local city police department to store and furnish cribs to families identified in need. The Genesee County FIMR team successfully obtained a grant to purchase and distribute 6,000 infant tee shirts to all new mothers delivering at local hospitals with the message "Face Up to Wake Up."

Detroit has lead the way hosting a community summit on Safe Sleep. They have engaged the media in their community education and awareness campaign with local mothers coming forward to tell their story.

Conclusion

Infant mortality is an important indicator of the health status and well being of citizens of the state of Michigan. Michigan continues to experience high rates of infant mortality compared to the nation. The case findings of local FIMR projects provide valuable insight into individual experiences with systems of care, and factors contributing to infant mortality in Michigan. These findings and the recommendations resulting from them can inform community-based efforts, provider practice, systems reform and policy development.

Three areas of need have been described (Maternal Health, Antenatal Care and Infant Health) and numerous recommendations have been made. The challenge for the state FIMR program is the development of priorities based on objectives for each area of need. Working together as a FIMR Network the local projects will determine which cases still need to be reviewed, and what are manageable outcomes to achieve. Through an informed effort of local teams, community leaders and state support, the delivery of services and systems of care can be changed to meet the goal of improved health for women and infants in Michigan.